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ABSTRACT

This study examined the effect of covert modeling on communication apprehension, public speaking anxiety, and communication competence. Students identified as highly communication apprehensive received covert modeling, a technique in which one first observes a model doing a behavior, then visualizes oneself performing the behavior and obtaining a good outcome. Research has shown this technique to be effective in reducing avoidant behavior (Kazdin, 1973), phobias (Bandura, Adams, Hardy, & Howells, 1980), and social anxiety (Kazdin, 1979). Students visualized themselves having to cope with minor problems that came up as they prepared for and delivered their upcoming speeches. Results showed covert modeling was effective in reducing communication anxiety in students with initially clinical levels of communication apprehension. Implications regarding communication competence and performance are discussed. (Contains 34 references and 2 tables of data.) (Author/RS)

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The Effect of Covert Modeling on Communication Apprehension, Communication Confidence, and Performance

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Abstract

This study examined the effect of covert modeling on communication apprehension, public speaking anxiety, and communication competence. Students identified as highly communication apprehensive received covert modeling, a technique in which one first observes a model doing a behavior, then visualizes oneself performing the behavior and obtaining a good outcome. Research has shown this technique to be effective in reducing avoidant behavior (Kazdin, 1973), phobias (Bandura, Adams, Hardy, & Howells, 1980), and social anxiety (Kazdin, 1979). Students visualized themselves having to cope with minor problems that came up as they prepared for and delivered their upcoming speeches. Results showed covert modeling was effective in reducing communication anxiety in students with initially clinical levels of communication apprehension. Implications regarding communication competence and performance are discussed.

The Effects of Covert Modeling on Communication Apprehension, Communication Competence, and Performance

Communication Apprehension (CA) is "an individual's level of fear or anxiety associated with either real or anticipated communication with another person or persons (McCroskey, 1996, p. 42). It is generally viewed as a traitlike disposition, although individual situational differences may exist (e.g., one may be apprehensive about communication with particular individuals, but not with most others) (McCroskey, 1996). Public speaking anxiety (PSA) is one facet of CA. It relates to anxiety experienced when one is anticipating delivering a speech.

Communication apprehension is hypothesized to be associated with avoidance of anxiety-provoking communication situations (McCroskey, 1997b). Students with high CA have been shown to be more likely to drop out of public speaking classes than are low CA students. (Rubin, Rubin, & Jordan, 1997). Although it may be tempting to assume that CA arises because of an overall lack of competence, research has shown it to be unrelated to intelligence, grade point average, course grades, or test scores (Bourhis & Allen, 1992). People who are high in CA are perceived as less attractive, less trustworthy, and less enjoyable to interact with than people who are low in CA (Colby, Hopf, & Ayres, 1993).

Because of the problematic side effects of CA, many universities have designed special procedures to assist students with CA. Robinson (1997) in a national survey of universities and colleges across the United States, found that interventions are most commonly done in regular speech classes, and most commonly involve skill training interventions (e.g., developing delivery, outlining, and research skills), cognitive modifications (e.g., small group discussions

about CA), or visualization. Occasionally, systematic desensitization, a technique employing relaxation and visualization of feared stimuli presented hierarchically, is used (McCroskey, Ralph, & Barrick,1970; Robinson, 1997).

Recently, researchers have begun to examine using imagery techniques to reduce anxiety in students enrolled in public speaking classes. Ayres and Hopf (1985, 1989) found that students who visualized themselves making a speech reported less CA than did students who engaged in a rational thinking discussion. Visualization produces effects that last as long as eight months (Ayres & Hopf, 1991). Visualization scripts typically focus on positive thinking and visualizing onself making a flawless speech (Ayres, 1995; Ayres, Heuett, & Sonnandre, 1998; Ayres & Hopf, 1985; 1989; 1991a; 1991b).

A related technique, covert modeling, has long been used to treat avoidant behaviors (Kazdin, 1973), phobias (Bandura, Adams, Hardy, & Howells, 1980), social anxiety (Kazdin, 1979), and test anxiety (Bistline, Jaremko, & Sobleman, 1980; Harris & Johnson, 1980). Covert modeling is a visualization technique wherein students or clients first view a live or videotaped model performing a behavior to be learned and then, in a state of deep relaxation, visualize a model performing that behavior and subsequently obtaining a favorable outcome. Management of anxiety is a major focus. Covert modeling appears to produce changes that generalize to novel situations (Kazdin & Mascitelli, 1982; Zielinski & Williams, 1979).

There is considerable evidence that people visualize spontaneously when a stressful event is anticipated (Neitzel, Martorano, & Melnick, 1977). In an anxious person, these visualized simulations are in line with negative efficacy expectations (Bandura, 1989). Thus, a

highly anxious individual would be apt to visualize failure scenarios that may subsequently undermine performance, whereas a non-anxious person would visualize success. To extend this to students with PSA, it is likely that they spontaneously visualize themselves performing a speech poorly, and that these maladaptive visualizations undermine performance.

The visualization studies done thus far regarding PSA have involved having students visualize themselves giving a speech. Because research has shown that visualizing a model who is similar to oneself in competence produces the greatest behavioral effects (Brown & Inouye, 1978), visualizing oneself performing in an anxiety-provoking situation makes sense. However, research also shows that visualizing a model who performs flawlessly is less beneficial than visualizing a model who must cope with difficulties (Kazdin, 1973; Meichenbaum, 1971). As Neitzel et al. (1977) pointed out in a study using covert modeling to develop assertive skills, visualizing the model performing flawlessly fails to prepare people to deal with problems they may face when carrying out the behavior. Their study compared effectiveness of visualization scripts where models behaved assertively and were reinforced by compliance and visualization scripts where the model performed assertively but had to respond to initial noncompliance with the assertion. They found that participants who visualized effectively coping with minor problems were able subsequently to behave more assertively than subjects who visualized flawless performance, were more assertive in novel situations, and persisted longer in assertive responses. Thus, for students high in CA, visualizing oneself preparing for and giving a speech flawlessly may be less effective than visualizing coping with minor difficulties.

The present study examined the effect of covert modeling on high PSA students' communication apprehension, communication confidence, and performance. We hypothesized that students who received covert modeling would experience less CA at the end of the semester than at the beginning. We further hypothesized that students who gave their first speech prior to receiving covert modeling would perform more poorly on that speech than did students who had received covert modeling.

Method

Participants

Participants were recruited via a mass mailing to approximately 1250 new freshmen at a small Midwestern university in Fall, 1999. A letter explained the purpose of the study. Students were asked to complete the consent form, a demographic form, and the PRCA-24 and return them via campus mail. Approximately 75 responded. Only students with clinical levels of PSA (PRCA-24 of 80 or greater or public speaking subscale score of 20 or greater) were permitted to enroll in the special sections of Public Speaking. Students who qualified received a letter indicating that they should enroll in one of the two special sections offered. It was not judged reasonable to randomly assign them, given the difficulty of arranging freshmen schedules. There were 18 students in the experimental condition, 13 in the wait control section, and 20 in the control group. No incentive was offered for participation, however, students concurrently enrolled in psychology courses with research participation requirements received credit for experiment participation.

The two special sections and the control section comprised the three classes taught by the first author during the Spring, 2000 semester. The total sample of 51 students were 39% male, 61% female, 98% white, 0% African American, 0 % Asian, and 2% other. The average age of subjects was 19 (range 18 to 30). There were 20 students in the control group (a regular speech class), 18 students in one special section for anxious students, and 13 in the other (the wait-control section). Not surprisingly, given the fact that CA seems to be more common in women than men, the control group had a greater percentage of male (60% male) members than did the groups made up of highly anxious students (one group was 30% male, the other 22% male).

Instruments

McCroskey's (1978) 24-item *Personal Report of Communication* (PRCA-24) was used to measure CA. This measure is in common classroom use and it is nationally the most commonly used instrument for screening CA (Robinson, 1997). The reliability, validity, and factor structure of this measure have been established (Levine & McCroskey, 1990, McCroskey, 1996). The PRCA-24 contains six Likert-type items measuring CA in four contexts: dyads, groups, meetings, and public speaking situations. It yields a total score for CA (ranging from 24 to 120) as well as subscale scores in the four contexts. Although different versions of this measure exist, the one used in this study is recommended by the scale's originator (McCroskey, 1996). Internal consistency reliability is estimated at .94 (McCroskey, 1996). Total scores range from 24 to 120. A total score of 80 or above represents very high CA (McCroskey, 1996).

The *Self-Perceived Communication Competence* scale (SPCC) was used to measure participants' perception of their ability to communicate (McCroskey & McCroskey, 1988). The

SPCC is a 12-item scale which requires participants to rate, on a zero to 100 scale, their competence to communicate in four settings (i.e., dyadic, group, meeting, and public) at three stages of relationship (i.e., stranger, acquaintance, and friend). The reliability and validity of this measure have been established (McCroskey & McCroskey, 1988) as has its internal consistency (Ayers et al, 1998; Rubin, Rubin, & Jordan, 1997). It correlates negatively with measures of CA (Sallinen-Kuparinen, McCroskey, & Richmond, 1991).

Self-perceived CA has been demonstrated to be independent of the level of anxiety perceived by observers (Carrell & Willmington, 1998), so a performance measure was included as well. Further, because the majority of college students' speech presentations do not occur in speech classes, other faculty were recruited to rate performance on the tapes. Three psychology faculty members, trained by the first author, rated speeches. The three raters met together to meet and reach consensus on all available tapes. For ecological validity, we attempted to use the form routinely used by the speech faculty at the university to evaluate speeches in public speaking classes to measure performance on speeches the participants presented in class. Unfortunately, this form proved unworkable for the faculty raters, who had difficulty achieving acceptable interrater reliability using that form. A simpler form, incorporating Likert ratings on three aspects of each speech (overall organization of the speech, freedom from overtly displayed anxiety, and level of preparation) was substituted. Raters independently rated each individual on a five point scale, with one indicating the poorest performance and 5 indicating the best performance. The three raters then reached consensus on the ratings for organization, freedom from overt anxiety, and level of preparation.

Procedure

All three groups had the same instructor, text, and assignments. The control group took the PRCA-24 the first and last day of class, and the students in special sections, who had already taken the PRCA-24 to qualify for the study, took it again the last day of class. All groups were administered the SPCC the last day of class. Students in all classes gave a demonstration speech, an informative speech, and a persuasive speech (in that order), among others. All speeches were videotaped. The only difference between the control section and the two treatment sessions was that the control section had a bit more time to cover topics, because in the treatment sections, the instructor had to reserve three class periods for the covert modeling intervention.

In all three classes, prior to delivering the first speech, students watched a video of a man preparing for, rehearsing, and delivering a speech. Section 1 received the covert modeling intervention the class period prior to giving each speech. Section 2 served as a wait-control group, in that students gave their demonstration speech before receiving the covert modeling instruction for the demonstration speech. They received the covert modeling for the demonstration and informative speech the two class periods before the informative speech. Both special sections received the covert modeling intervention for the persuasive speech the class period before giving the persuasive speeches.

The covert modeling intervention employed relaxation instructions, followed by visualization. The covert modeling interventions were conducted by a licensed psychologist with previous experience with covert modeling (Bromley, 1996). Students were asked to imagine themselves preparing their speech, and then presenting it. Because research shows that anxious

students typically engage in maladaptive speech preparation procedures (Daly, Vangelisti, & Weber, 1995), the scripts focused a good deal on coping with anxiety as one carefully prepares for a speech. Each script included a variety of potentially awkward situations that could come up during a speech (e.g., dropping note cards, noticing audience members were bored, coping with a heckler) and incorporated instructions relating to variables such as novelty and conspicuousness that have been shown to be related to PSA (Beatty, 1988). Each script was specific to the type of speech the students were about to give, and each contained different awkward situations to cope with. The scripts included portions where the students were to imagine themselves becoming anxious and then coping with the anxiety. Each visualization took approximately 40 minutes, with the first ten minutes devoted to deep relaxation.

Results

Communication Apprehension

The PSA of the treatment and control sections was compared at the outset of the study (Table 1). Not surprisingly, on the PRCA-24, the treatment groups, Sections 1 ($\bar{x}$ = 95) and 2 ($\bar{x}$ = 97.11), showed significantly greater initial apprehensiveness than the control section ($\bar{x}$ = 66.85), $F(2, 41) = 16.06$, $p < .001$. The PS subscales of this measure differed similarly, $F(2,41) = 16.40$, $p < .001$. At the beginning of the study, the PS subscale means for Sections 1 ($\bar{x}$ = 27.15) and 2 ($\bar{x}$ = 26.83) exceeded that of the control group ($\bar{x}$ = 19.54) . The fact that the PS mean for the control group was so near the cutoff used to qualify students as highly apprehensive suggests that this group contained some high CA students, as well. The three groups did not differ significantly in age, credits toward degree, or marital status.

Table 1

Mean PRCA-24 total scores and Public Speaking (PS) subscale scores pretest and posttest, and posttest SPCC public speaking subscale scores.

	Pretest		Posttest		
	PRCA-24	PS	PRCA-24	PS	SPCC
Special Section1	95.00	27.15	75.54	21.23	61.69
Special Section 2	97.11	26.83	74.28	20.94	66.33
Control	66.85	19.54	62.45	18.60	76.80

Note: Maximum PRCA-24 score is 120, maximum PS score is 30, maximum SPCC public speaking score is 100.

Change scores were computed for all subjects on the PRCA-24, and a one way ANOVA computed. Greater change was observed in the two treatment groups than in the control group. Mean change scores for Section 1 ($\bar{x}$ = 19.46) and 2 ($\bar{x}$ = 22.83) exceeded the mean change score for the control group ($\bar{x}$ = 4.69), $F(2, 41) = 6.95$, $p < .01$. Thus, greater change in CA was observed in the treatment groups than the control group. Scheffe comparisons show no significant difference in change scores between the two treatment groups ($S = 3.37$, $p = .80$).

Consistent with other research (Rubin et al., 1997), PRCA-24 scores decreased over the semester for the total sample, suggesting that mere participation in public speaking class decreases CA, $t = 3.0l$, $p<.001$.

Change scores were also computed for all subjects on the PS scale of the PRCA-24, and a one way ANOVA computed. Greater change was again observed in the two treatment groups than in the control group, $F(2, 41) = 17.80$, $p < .001$. For Section 1, $\bar{x} = 5.89$ and for Section 2, $\bar{x} = 5.92$. For the control group, $\bar{x} = -.23$. Similar benefits were observed in the interpersonal communication, $F(1,42) = 10.01$, $p < .01$, and group discussion domains, $F(1, 42) = 4.45$, $p < .05$. This suggests that interventions targeting public speaking specifically may generalize to other communication situations.

Examining posttest scores on the PRCA-24, the treatment and control participants also differ significantly, $F(1, 49) = 9.77$, $p < .01$. The mean for the combined sample of treatment subjects ($\bar{x} = 74.81$) exceeded that of the control group ($\bar{x} = 62.45$). Thus, even though the apprehensive students changed more throughout the semester than did the control students, they remained more fearful overall. However, examining only the PS subscale, the differences in groups diminish. At the end of the study the control group was significantly less anxious about public speaking than the students in the special sections, but not impressively so, $F(1,49) = 5.13$, $p < .05$). Thus, it appears that the intervention targeted public speaking fairly specifically, and did not produce such a large effect on overall communication apprehension as to bring the anxious students into line with the control students.

Communication Competence

The groups differed significantly in their perceived level of communication competence at the end of the study, $F(2,48) = 5.48$, $p < .01$. The control participants were more confident ($\bar{x} = 76.8$) than the participants in the treatment sections ($\bar{x} = 66.33$ for Section 1 and $\bar{x} = 61.69$ for

Section 2). Post hoc Sheffe comparisons were significant only between Section 2 and the control group, $S = 15.11$, $p = .01$.

Performance on Speeches

Performance data is incomplete, due to problems with the recording equipment (i.e., students sometimes turned the microphone off, thinking they were turning it on.) Thus, although every speech was videotaped, those with missing audio could not be coded (mean ratings for speeches are reported in Table 2). Using the available data, a one way ANOVA on the overall performance scores revealed no significant differences between treatment and control groups on the information and demonstration speeches. Because the ANOVA approached significance for the very last speech, the persuasion speech, a one-way ANOVA on the subscales of the performance measure was performed. Significant differences were observed between the treated groups (combined) and the control group on the persuasion speech ratings for level of organization, $F(1, 30) = 14.1$, $p = .001$, and overall presentation, $F(1,30) = 4.99$, $p = .03$, such that the treated groups' speeches were superior in both presentation and organization to those of the control group. This was not observed regarding for freedom from anxiety, $F(1,30) = .47$, $p < 1$.

Table 2

Mean ratings for overall performance, freedom from anxiety, organization, and presentation skills for Demonstration (Demonstrate), Information (Inform), and Persuasion (Persuade) Speeches.

	Overall Performance	Freedom from Anxiety	Organization	Presentation
Special Section 1				
Demonstrate	8.80	3.10	3.30	2.40
Inform	10.29	3.29	3.71	3.29
Persuade	8.67	2.67	3.17	3.00
Special Section 2				
Demo	9.75	3.33	3.25	3.17
Info	8.50	2.58	3.17	2.67
Pers	10.33	2.83	4.17	3.33
Control				
Demo	8.70	3.20	3.00	2.60
Info	8.91	3.09	3.09	2.73
Pers	7.90	3.00	2.45	2.40

Note: Maximum overall score is 15, maximum subscale score is 5. Higher scores reflect better performance.

Discussion

A number of interesting findings resulted from this project. First, the fact that the pretest mean of the control group of supposedly "nonclinical" students was very near the cutoff used to qualify students for the two treatment groups suggests that some students in this group were probably experiencing quite high levels of CA initially. Consistent with other research (Rubin et al., 1997) this group, though it received no remediation, reduced its CA and PSA by the end of the semester.

Second, the covert modeling intervention, which involved relaxation training and visualization of oneself preparing for and delivering a speech, proved very successful in reducing anxiety in students with initially high levels of CA. Visualizing coping with anticipatory anxiety and potential awkward situations proved useful. The visualization appears to have reduced anxiety regarding public speaking and generalized to group discussions and interpersonal communication situations.

This apparent modulation of anxiety in the treatment groups is also evident in the students' performance of their speeches. By the end of the semester, the three groups were virtually identical as to the level of anxiety displayed in the speeches. However, one finding which we expected was not observed. We predicted that Special Section 1 would perform the first speech more competently than special Section 2 (the wait control group), which had not yet received its first covert modeling session. This did not prove to be the case. It may be that covert modeling produces its effects over time, rather than having an immediate impact on speeches.

Another interesting implication is the relatively poor performance of the control group, which received no intervention. One possibility is that group was overconfident in their public speaking ability and put less time and effort into organization and presentation. However, since this group's PRCA-24 levels approached clinical levels, one may speculate that members of the control group needed more intervention than they received with the general course curriculum.

Because the intervention was useful with clinically anxious students, and because the pretest scores suggest that the control students as a group were also quite anxious, one may assume that covert modeling would be useful with regular public speaking classes, as well as clinically anxious students. Because the treatment groups reduced their anxiety more than did the control group, we may assume that visualizing oneself preparing for and delivering a speech provides benefits beyond mere participation in a speech class.

Covert modeling may also be effective in boosting communication confidence in highly anxious speech students. The fact that one of the treatment groups did not differ significantly from the control group in communication competence at the end of the study suggests that the intervention may have had a positive influence on confidence in oneself as a public speaker, as well. Future research employing a pretest as well as a posttest measure of communication competence would provide information in this regard.

This study has several limitations. First, the sample is small and almost entirely white. Second, the students identified as anxious were not able to be randomly assigned to groups. Third, the groups differed in proportion of males, with the control group being predominantly male and the two treatment groups predominantly female. It is not known

what effects these limitations may have had on the outcome of the study.

Finally, mere participation in a class where the students believe the others are all anxious may have reduced anxiety. On the last day of class, during the debriefing, several students mentioned that knowing the others were highly anxious helped them feel less anxious themselves.

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